

Industry: Sewage treatment

Products Used: Frequency inverter drives

Economical Drives Cut Power Costs at Sewage Plant

Variable-speed drives for pump and fan applications are an effective antidote for rising power costs. This applies in particular to the inverters of Mitsubishi Electric's FR-F740 series, which can cut power consumption by up to 60%, as the operators of a sewage treatment plant in Lippstadt, Germany, have discovered to their benefit.



The Westphalia Hospital in the rural Eickelborn quarter of the town of Lippstadt operates its own sewage treatment plant in the large hospital complex, which also includes the Westphalian Centre for Forensic Psychiatry. The plant processes the sewage generated by the around 2,300 patients and hospital staff and the 2,300 residents of the nearby communities of Eickelborn and Lohe, and then runs the treated water into the Lippe river.

Four pumps, each with a capacity of 120 m³ per hour, pump the sewage up to the highest point in the plant, the drip filter tower. Individual pumps are activated and deactivated depending on the current sewage volume, which varies depending on the time of day and the season. As is common in building services and industry, the pumps were operated directly from the mains for many years, wasting a lot of electricity.

The hospital operators thus decided to perform a trial with power-saving Mitsubishi Electric frequency inverter drives designed specifically for the needs of pumps and fans. The

equipment was delivered and installed by Mitsubishi wholesale partner H. Gautzsch Grosshandel GmbH in Münster, Germany, who also provided consulting services. Gautzsch installed two FR-F740 inverters with outputs of 7.5 and 15kw, respectively. The more powerful unit powers one of the motors at variable frequency and switches in a second pump motor automatically when required. The smaller inverter is used to power the third pump motor and the fourth motor is left connected directly to the mains and only used as an emergency backup.

The operators of the hospital in Lippstadt were impressed by the power savings achieved by the advanced control technology. After the two-month trial it was clear that the frequency inverters would pay for themselves within the space of a year, after which they will save the hospital nearly €4,000 in operating costs every year.

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The frequency inverters are going to pay for themselves in the first year.

Franz-Josef Heiming
Director of the central power plant at the
Westphalia Hospital in Lippstadt

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The inverters' simple monitoring and data management features have also been a bonus. Operating values like current, voltage and output can all be viewed quickly and easily and a user-friendly one-touch control provides quick access to all drive parameters. Configuration is just as simple: thanks to state-of-the-art circuitry and the integrated EMC filter the inverters are ready for operation as soon as they are connected.

Application story first released in September 2006 by Mitsubishi Electric Germany on the basis of information by Westfälische Klinik Lippstadt, Germany